DOCUMENT RESUME

ED 265 420 CE 043 486

AUTHOR Pierce, Greg E.
TITLE Forging New Challenges in Curriculum.
PUB DATE Dec 85
NOTE 14p.; Paper presented at the American Vocational Association Convention (Atlanta, GA, December 1985).
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Agency Cooperation; Cost Effectiveness; *Curriculum Development; *Curriculum Problems; *Educational Improvement; *Educational Needs; Educational Practices; Educational Trends; Futures (of Society); Instructional Development; *Instructional Materials; Material Development; Media Adaptation; Relevance (Education); Secondary Education; Technological Advancement; *Vocational Education

ABSTRACT

New curriculum materials are necessary to improve vocational education. Even when new materials are developed, however, they often fail to improve programs, either because teachers are not taught how to manage and use the new instructional materials, or because the environment does not allow change. The role of administrators is to encourage instructors to follow through with the curriculum and to provide instructors with adequate time and resources to implement it. Instructional materials for vocational programs should meet three basic requirements to satisfy user needs: the materials must be flexible, they must be timely, and they must be affordable. Flexibility is needed because of the recent emphasis on individualizing instruction, and because of the rapid advances being made in technology. Curricula with components that can be easily replaced would provide flexibility. Timeliness means that curriculum materials must reflect the latest technologies, they must not spend so much time in development that they are already obsolete when they are implemented, and they must reflect the latest in educational advancement. Finally, materials must be made affordable in such ways as mass production and elimination of duplication and designed so that customers have to buy only the parts they need, and elimination of duplication. More important than ever is the need for the various agencies involved in curriculum materials development to join forces to make the most economical and effective use of resources. These methods will help to stretch the curriculum dollar. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED265420

Greg E. Pierce

"FORGING NEW CHALLENGES IN CURRICULUM"

We in education stand mud-splattered in a bog. It seems everywhere we look there is someone who is ready to tell us what is wrong with education. In April 1983 the National Commission on Excellence in Education reported in "An Open Letter to the American People, A Nation at Risk: The Imperative for Educational Reform." We are told that the quality of education in this country has reached a crisis stage. All of this is very disheartening, yet the situation is magnified even further if your branch of education happens to be vocational and technical training. We in vo-tech, with only rare exceptions, have never been viewed with very high regard in the first place. We have struggled for years to prove ourselves, to become accepted. So, if traditional education is being criticized, then we by association are being thoroughly deplored. We are looked upon by many as a substandard branch of a second-rate system. We have all become very concerned with getting back to the basics. Educators today and citizens of this country are concerned with the three R's, but as curriculum developers, we must first concern ourselves with the two "R's." The two "R's" are "Revenue" and "Reform", and we will probably need to address "Revenue" before "Reform."

I'm not prepared to surrender, but I do have to admit that the critics are not completely wrong. Yet, in defense of vocational education, I would like to also say that in many ways vocational education is more on target than many other segments of our educational system.

For one thing being number two, like Avis, we try harder. Vocational programs have developed along with the research on learning by Bloom, Witkin, Bruner, and many others. Early in our history, we adopted the use of stated performance objectives, and we updated our methods as advances

CE043486

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

G Pierce

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

were made in the sciences of learning. In the 50's and 60's we began developing behavioral or performance objectives for our vocational programs. These objectives later became the basis for curriculum development in the 70's and now in the 80's we have advanced our technology with the concepts of Competency-Based Vocational Education. Additionally, due to our close association with business and industry, we were able to share in a number of innovative training ideas that did not have to survive the institutional development and approval process associated with public education. As a new field, vocatioal education has been free of many of the shackles of tradition that have often hindered the advancements of other educational programs. All this is not to say that we can rest now for we too have to continue analyzing, modifying, adapting, revising, and re-examining new concepts and techniques for presenting our programs. We view this not as a threat to us, but welcome it for the good of society and for the benefits that all of education will receive from the resulting self-examination and attempts to overcome the problems.

Part of the task educators face is that so many problems have been pointed out—some warranted and some not quite accurate—we may have trouble deciding where to begin. One reaction has been to challenge the reports, to defend what we are doing,and to try to prove the critics wrong. To me, that is largely unproductive. I feel sort of like we have been stopped for speeding when we are sure that we have been obeying the speed limit. We can waste time and energy clamoring that there is no justice in all this. Or we can think of the hundreds of times that we really were speeding and got away with it and just accept that the critics, like the policeman, are doing their duty and have the good of society and our own welfare as their concerns. In vocational education, this acceptance

involves our continuing to try to improve the quality of our education and—most importantly—its effectiveness in producing well-trained individuals who are capable of filling a meaningful place in society. Assuming that we do make that choice where then should we concentrate our energies? This group is largely concerned with instructional materials, and these certainly deserve a large share of our attention. So, for the next few minutes I would like to share with you what I believe to be "Forging New Challenges in Curriculum."

But what about the wo "R's", "Revenue" and "Reform". Everybody is in love with the idea of developing curriculum and instructional materials. How effective is the program? Are the teachers teaching what they are supposed to (minimum standards)? Can the students apply the new skills in a job situation? How can we improve the program for the next group of students?

Articles about curriculum materials, in which we convince one another of their importance, are increasingly popular in education and training journals. Curriculum is a second word among administrators. Every systematic training system includes a curriculum component. An efficient curriculum and instructional materials system is the most powerful way to improve training programs.

Curriculum materials are essential to "fix" poor training programs and to make good ones better. It can insure that instruction is well-conducted, that a program's content is correct, that trained skills transfer to the workplace, that money spent on vocational education produces measurable improvements in student effectiveness, efficiency and safety on the job. In short, is vocational education worth it. Today's increased emphasis on

competency-based education makes it easier than ever to develop meaningful instructional materials for vocational programs.

Why, then, do so many curriculum efforts fail to do what they are supposed to do? Why do our curriculum systems so seldom produce the desired changes in efficiency, effectiveness, or safety? Why is it that the frequent product of an elaborate development activity is neatly printed and filed away and never referred to until a regulatory agency asks about curriculum, at which time the materials are dusted off, used to make the predicted impact, and refiled until called for again? How can all this be done without the curriculum ever affecting the quality of the vocational training program.

Simple! We fail because, for all our enthusiasm about curriculum and instructional materials for our training efforts, we miss the point. Here's the important point, we must train instructors on how to manage and utilize the instructional materials developed and encourage them to use the system. The idea is that curriculum materials are used to change the programs as needed to better meet the training needs.

A curriculum breaks down for two reasons. Either the teachers are not trained in how to manage and utilize the materials or the environment does not allow change. The role of the curriculum specialist is to provide dissemination and diffusion activities immediately. One of the prime criteria for useful dissemination and diffusion activities is immediacy. The role of administrators and supervisors is to encourage instructors to follow through with the curriculum and to provide instructors with adequate time and resources to implement the curriculum. When others get in the way of the process, even if they want to be supportive by cushioning the blow of implementing a new curriculum, the curriculum loses its effectiveness.

The second factor that will demolish the effectiveness of a curriculum is a training environment that doesn't allow change. This can mean a situation in which instructors and local administrators are not obligated to improve the training program, one in which they lack the time, knowledge or skills required to change the training, or one where they lack support for effective implementation of the curriculum.

An educational institution's curriculum approach is likely to fall into one of four categories:

(1) "Cover Your Rear" approach

(2) "Try Your Best" approach

(3) "Unmanaged" approach

(4) "Do It Right" approach

Creating the environment to allow for changes and providing in-service training are the first steps to the two R's and stretching your curriculum dollar. Never begin a development project without planning activities that create the proper environment and teacher in-service.

In the last year we have spent much time addressing the need for change. You recognized the changes in technology in the classroom taking place. Competency-based vocational education has been an asset for developing better instructional materials; but with CBVE and the new technologies, many new delivery systems and concepts are being utilized.

In 1975 vocational education was primarily teacher directed, today more emphasis is being placed on individualized instruction which is directed by new technologies. The problem we face is that there is no standard with the new technologies whether it is video tape or computer software and hardware that are used in interactive video. Traditionally

educational technologies have been standardized such as color slides or transparencies.

As I see it, instructional materials for vocational programs should meet three basic requirements to satisfy user needs. The materials must be flexible; they must be timely; and they must be affordable. First in terms of flexibility, a number of concerns arise. The latest studies of learning emphasize that no one technique of teaching is suitable for very student, that we each have individual learning styles. These studies indicate that teaching should be truly "individualized"—and by that we mean more than just self-paced and covering objectives that a particular student requires. That much is a beginning, but to be really individualized, instruction for each student must be tailored to meet that individual's preferred learning style. For some people, learning is effective through reading; for others, lectures are beneficial; others find it easier to learn if the presentation is accompanied by a number of visual or psychomotor supplements; some even need the security of a rigid, lock-step presentation. We are discovering that it may be just as unfair to expect a student to adjust to a self-paced program as it is to insist that all students proceed at the same rate. In short, if we are to improve the effectiveness of our teaching, we must have some sort of mechanism to assess the learning styles of the students, and the curriculum must be flexible enough to work for a number of such styles. Our instructional materials must include enough alternatives to meet the needs of a wide range of learning styles. This is especially true of vocational programs that serve secondary, post-secondary, and short-term adult students with a variety of backgrounds and abilities.

Flexibility is also a requirement because of the various differences in the program offerings of vocational institutes. The curriculum materials

have to be adaptable to the specific training needs of a community or an individual group of students. In some cases, this will mean that the materials will have to go into great detail on the subject covered. In other programs, the instructor will need to be able to skip some material or present it in a different order. Some programs will require traditional grading of the students progress. Some will have to fit into specific time-frames, whether for each class session or for the total length of the course, and often both restrictions will apply.

Vocational instructional materials must be flexible in their ability to adjust for the rapid advances being made in technology. New technology has been ringing in our ears for so long that the phrase has gone beyond the point of being a buzz-word. However we tend to associate the term with such vocational programs as electronics, hydraulics, robotics, and other such fields. The truth is that advancing technology is revolutionizing almost every program in which we are involved, including the basic home economics and vocational agriculture courses that constitute the core vocational programs in many states. In agriculture for instance, students are now employing the latest computer technology for agribusiness, electronics devices are used to determine the best time to breed livestock, and that breeding is often done artificially, using the science of cryogenics to preserve tissue and genetics to produce new bloodlines that could never have resulted from the actual matings of animals; crops are chemically supplemented, electronically analyzed, and harvested and handled by complex electro-mechanical systems.

The home economist truly works in the field of economics with the personal computer, an almost indispensible tool. Every appliance in the kitchen, the serving room, the nursery and other work areas employs electronics to

perform the tasks more efficiently and accurately. In auto body programs, chemistry has introduced a whole new world of plastics and polymers; frames are aligned and paint is applied with the use of lasers. Welding has evolved into areas that were unheard of just a few years ago through the use of new metals, new fusion materials, new electronic systems, and, of course, robotics. Our automotive mechanics are required to work on cars with as many as sixteen separate and interconnected computer systems--and as soon as I have said that the number will have changed. In 1986, ore manufacturers will offer a satellite navigation system, by which the driver, or navigator, can determine the vehicle's location within a hundred yards of any of 13,000 maps that can be displayed on a screen.

The fields are advancing at a rate faster than what we are capable of producing materials. We must create some means by which our materials can grow and can be revised to accommodate the impact of this rapid technological advancement. Curriculum developers--indeed, all educators--must create even stronger links with industry in order to keep pace with the swift changes that are sweeping the industrial sector. And our instructional materials must be flexible enough to change with technology and the resulting shifts in the needs of industry.

This brings us to the need for timeliness of curriculum materials. One aspect of that need is the requirement for our instructional materials to reflect the latest technologies, to evolve with industry in a responsive manner. Instructional materials cannot spend so much time in the development process that they arrive in the hands of users already obsolete. Curriculum developers today have to be more concerned than ever with their

production methods and their distribution systems. Certainly we must do thorough task analyses, adequate research, comprehensive reviews and validations, and attractive, thoughtful presentations of the subject we cover. Yet we cannot spend so long in development that the product reaches the users well after it is first needed and so long after the validation process that the information is no longer accurate or is incomplete. This need calls for materials that are packaged in small modules or that allow for easy relacement of component parts. Obviously, this means that we will have to closely examine the formatting and packaging of our material, for our users will demand the most up-to-date materials available as soon as their need exists. Because programs are often designed around available materials, it is imperative that the materials reach the hands of the users early enough so that the programs may be prepared in time for implementation.

By timeliness, I also mean that our materials must reflect the latest in educational advancement. For example, where appropriate, we should use computers and other new technologies. Our printed materials should reflect the latest advances in graphics and effective layout. Our teaching objectives and methods of presentation must be interesting and innovative. I am not advocating that we be swept away with every fad to which we are exposed; certainly, every implementation must be preceded by careful consideration of the merits and drawbacks of the innovation and should only be carried out with a clearly defined purpose.

We must also put into effect systems that will ensure that our materials remain accurate and up-to-date. This calls for some procedure of continuous review and a means of soliciting comments and corrections from the users. Then, we must have policies and methods for revising the materials—or rewriting them when necessary—so that they do not become outdated during their planned period of use.

We must have vocational instructional materials that are affordable. I'll be the first to admit that nearly every suggestion that has been made thus far will add to the product cost. Materials with the kind of flexibility and variety that I have described are definitely going to be more expensive than materials that are simply task outlines of that occupational area. But affordability is both a relative and an intrinsic characteristic. Although one product may initially cost more than another product, if the first contains effective, comprehensive materials that eliminate or lessen the need to buy additional materials, the customer is probably willing to pay the additional costs. In that way, the affordability is relative to what the customer gets.

However, budgets have concrete limits. A customer has only so much to spend on instructional materials. That fact puts some pressure on curriculum developers to make quality, effective materials available at the lowest possible costs. Naturally, we need to eliminate waste and ineffectual spending in the development and production processes. But more than that we have to be willing to examine ways of lowering the amount of money that the customer has to spend. One answer is to make careful decisons about packaging so that the materials are produced in sufficient quanitity to keep the unit cost down while offering the customers enough options that they can buy only those materials that are needed in their particular program. We need to evaluate means of using the materials that may reduce costs; for example, should some parts of the materials be consumable and others not be? We must eliminate duplication as much as possible, both within a book or other component and from one program to another. For

instance, would it be better to have a universal safety program or math unit that could be mass produced at a low cost and eliminated from individual books? We must avoid policies that add to the cost of materials, such as insisting that media and computer programs be developed for every written product when that may not be necessary or even desirable. We must be willing to work with our customers to assess not only their material requirements but also measures that will help those requirements to be met in an affordable way. And more important than ever is the need for the various agencies involved in curriculum materials development to join forces as we have in MAVCC to make the most economical and effective uses of funds and resources and to avoid duplicating each other's efforts needlessly.

Sounds tough, doesn't it? Well, doing something right is seldom easy. But in the area of educational delivery, there is no choice but to do it right. In this case, doing our job correctly requires us to be very mindful of these three needs: flexibility, timeliness, and affordability. If we also bear in mind the critical importance of this mission of ours, we will find the ways to do our jobs in just that correct manner. Then, someday when the next round of criticisms is hurled at education—and believe me, there will be a next round—we will be able to answer our critics and to offer them evidence of the success of our endeavors.

There is an old saying, "if the wagon wheel ain't broken then why fix it?" If we follow this concept today we would still be on wooden wheels with steel rims rather than riding on steel-belted radials. The old wagon wheel will still get you to your destination but riding in an air-conditioned car with steel-belted radials will do the job much better. We must continue

to look for better ways of doing things not only using existing technology but creating new.

Today we must develop instructional publications that will give our vocational students a high level of technical breadth, versatility, and preparation to enable them to interpret and embrace the fast-paced evolution of materials and processes.

Curriculum developers must address a process of continual adaptation. We are used to addressing change by expanding or modifying instructional materials, initiating new instructional materials and, in a few cases, discontinuing instructional materials. But because our resources are restricted and the rate of change is accelerating, we must accurately define what instructional materials should be developed and taught. We find today there are far more questions than answers when we attempt to define "What should be developed." None of us can afford a white elephant (an instructional publication that might be outdated before the last unit is written), nor an instructional publication for a few elite programs and students.

The trend toward acceleration of new technology is becoming more and more obvious. Recognizing this change educators must focus on high technology curriculum. Like other educators you have read the news stories and heard the same discussions about high technology. You have listened to business, industry and various publics. Now we must stop momentarily, try to assess where we are, and more importantly, where we are going.

At the July 1985 concurrent meeting Don Glines, Director of Educational Futures Project, presented his views on education in the future. He saw no educational institutions in the next century. If his prediction is true

then I also have a vision. I invision education being based upon sophisticated instructional materials and media. The system software will be expensive and complex to develop. Because of acceleration of new technology the software must be developed and revised frequently. The materials will be occupationally specific. Because of the cost, complexity and need for continued revision we will be forced to pool, share, or consort, our resources. I am convinced educators will strengthen their communications (through networks) and dissolve barriers (thus strengthening consortium efforts). There may or may not be educational institutions but in either situation there will be a tremendous demand for instructional materials and highly technical curriculum developers.

You want to stretch your curriculum dollar, which is the first "R" (Revenue) then you must be willing to Reform (the second "R"). As curriculum specialists, if you are truly concerned about the two "R's" then let me offer these suggestions:

1. Adjust the climate to allow change
2. Provide immediate in-service training
3. Utilize materials developed by your instructional materials laboratories
4. Support networking and consortium efforts

We are only on the frontier of sharing and stretching the curriculum dollar. The most limiting factor in progressive instructional design has been our unwillingness to work cooperatively, to share, and except the work of each other. We sometimes get the "not-invented-from-here syndrome." Just remember "no one of us is as smart as all of us."

Woodrow Wilson once said it like this, "I use not only all the brains I have, but all I can borrow."